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Trail Users and Potential Conflicts in Southwest Oregon

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Clemson University
Recreation Shortcourse

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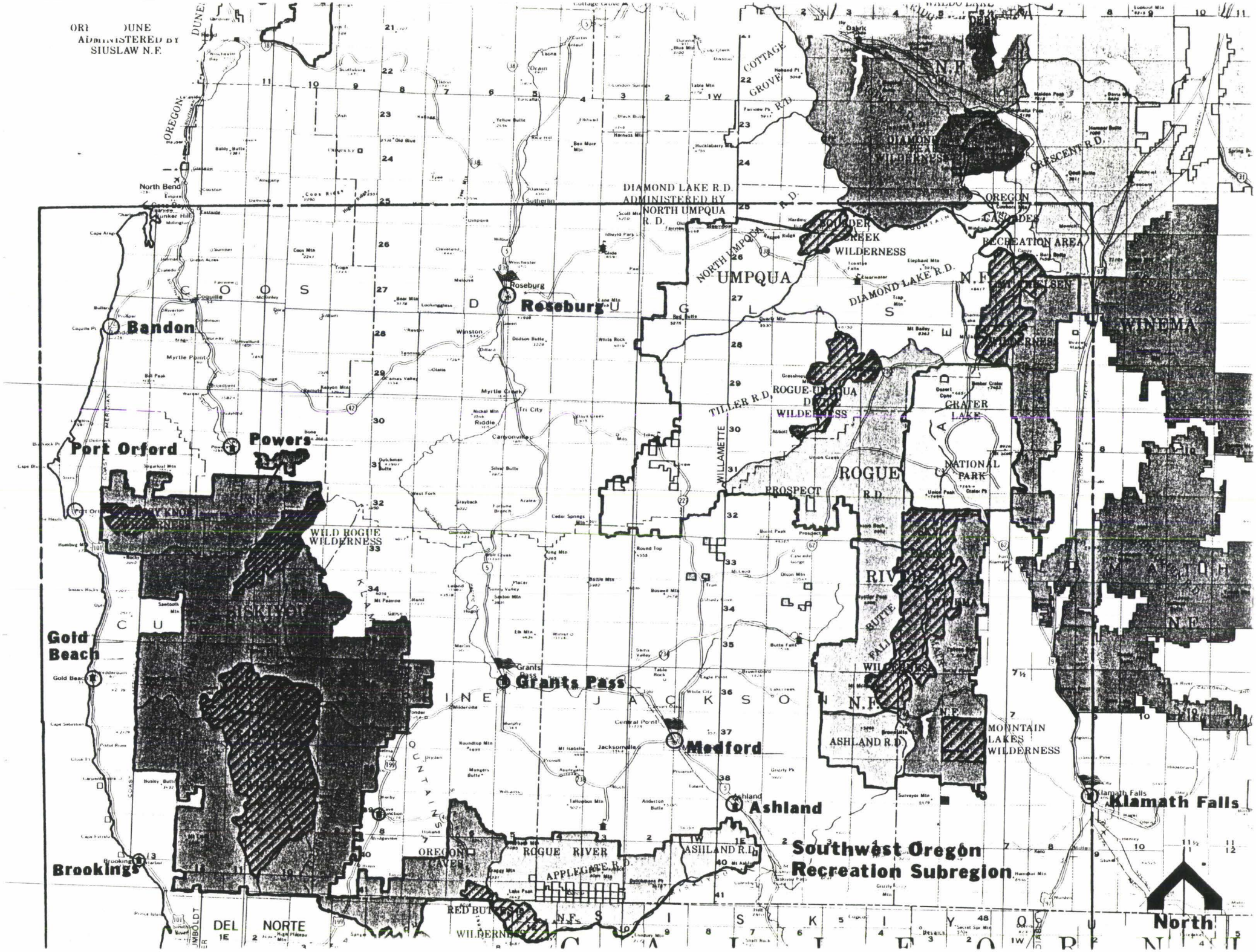
ABSTRACT

The Siskiyou, Rogue River, Umpqua, and Winema National Forest are involved in a multi agency partnership that includes four Counties, The State of Oregon, the Bureau of Land Management, the National Park Service, and several local communities in southwest Oregon. The partnership has been developed in response to the implementation of the Forest Service *National Recreation Strategy* and the State of Oregon's *Economic Development Strategy for Southwest Oregon*. The strategies focus on the development of the Recreation and Tourism industries in the four County area. Emphasis is being placed on a strong marketing scheme that would highlight recreation opportunities, including the abundance of trail related opportunities in the area. An increase in use on National Forest trails is anticipated and conflicts between user groups may occur.

There are opportunities to manage National Forest Trail systems to avoid conflicts between four primary groups of trail users; hikers, horse riders, motorcyclists (off road vehicles), and mountain bikers. An understanding of the perceptions of each user group and the types of experiences sought by each is obtained through a literature search and conversations with various trail users and trail managers. An image of each user group is presented as well as each groups perceptions of other trail users and potential for conflict. Several conclusions are drawn from the discussion of each group. This project recommends a strategy that focuses on the development of a strong management process; the maintenance of recreation settings of landscapes adjacent to Forest trail systems; the development of adequate standards and guidelines including trail management objectives and maintenance standards; the development of preinformation systems; the promotion of educational seminars to promote greater backcountry skills and understanding between trail users; and finally the promotion of the use of Forest trail systems.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SIUSLAW N.F.
North Bend
Coquille
Bandon
Port Orford
Powers
Gold Beach
Brookings
Roseburg
Grants Pass
Medford
Ashland
Klamath Falls
DIAMOND LAKE R.D.
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R. D.
UMPQUA N.F.
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SISKIYOU N.F.
WINEMA N.F.
DIAMOND PEAK WILDERNESS
BOULDER CREEK WILDERNESS
OREGON CASCADES RECREATION AREA
CRATER LAKE NATIONAL PARK
ROGUE-UMPQUA DIVIDE WILDERNESS
WILD ROGUE WILDERNESS
KALMIOPSIS WILDERNESS
MOUNTAIN LAKES WILDERNESS
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Table of Contents

Title	Page
Background and Purpose	1
Current Projects	1
The Future	1
User Diversity and the Basis for Conflict	2
Hikers	3
Mountain Bikers	5
Motorized Trail Users	7
Horse Riders	9
Conclusions	11
Future Considerations	13
References	16

Background and Purpose

In 1985, President Reagan established a commission to study Americans outdoors, charging the commission specifically to "look ahead for a generation and see what needs to be done to insure that Americans have appropriate places to do what they want to do outdoors" (Presidents Commission on Americans Outdoors, 1986). As a result of this report, emphasis has been placed on the effective development of outdoor recreation programs in public agencies at all levels.

In 1987, Forest Service Chief Dale Robertson announced the implementation of the National Recreation Strategy and increased emphasis for outdoor recreation in the Forest Planning process. At the same time, Oregon Governor Neil Goldschmidt formed the Economic Development Commission charged with the development of strategies at the local level that would be aimed at enhancing the economics of various areas of the state. Members of the commission and local county governments formed a coalition and developed an economic strategy that focuses on the development of the recreation and tourism industries in Southwest Oregon. In August 1988, the Forest Service (including the Siskiyou, Rogue River, Umpqua, and Winema National Forests), Josephine, Jackson, Curry, and Douglas counties, the State of Oregon, Bureau of Land Management, the National Park Service, and local communities formed a partnership to market recreation opportunities, and develop recreation facilities in Southwest Oregon (USDA/SOVA, 1989). The framework for this partnership was initiated in 1986 when members of the various agencies formed the Southwest Oregon Trail Committee for the purpose of marketing the abundance of trail related recreation opportunities and to take advantage of cross funding opportunities for the development of additional trail facilities. Initially the group focused on non-motorized trail users but rapidly recognized the need to focus on the recreation resources in the area and all user groups including those interested in motorized as well as non-motorized recreation opportunities.

Current Projects

At present, the partnership has two projects targeted for completion in 1990. The first is the development of a system of approximately 34 interactive video stations at various locations throughout Southwest Oregon. Each station would feature a touch sensitive video screen offering information about various recreation opportunities, including trails, in Southwest Oregon. The second project is the development of a Southwest Oregon Recreation Map. The map will be graphically appealing, featuring the use of color to illustrate topographic relief. All public recreation sites (regardless of agency affiliation) would be identified as well as the travel routes accessing them throughout the four county area. These maps would be made available at the same outlets offering the interactive video stations. Other projects including Visitor Information Centers, Winter Sports Parks, Horse trails and Off Road Vehicle (ORV) trails are planned along with an ongoing marketing campaign aimed at attracting more visitors to Southwest Oregon. Recreation use (including trail-use) is expected to increase as a result of this marketing campaign.

The Future

The purpose of this paper is to provide recreation managers at all levels with information about the expectations of various trail user groups and the attitudes of the various trail users toward other trail user groups. Recreation Staff and Trail managers are in a unique position in that use is still *expected* to increase and management plans can be developed that address the desires, expectations, and experiences of the various trail user groups and to resolve conflicts or potential conflicts among those same (trail) users.

The Siskiyou National Forest recreation resource and the management of that resource attracted approximately 14,000 public comments in the recent Forest Planning process. A significant number of those comments were specific to the management of the trail system (Siskiyou National Forest Plan, Appendix K, March, 1989). The three National

Forests in southwestern Oregon (the Rogue River, Siskiyou, and the Umpqua) provide approximately 1300 miles of trail with opportunities for motorized and non-motorized trail users in a variety of recreation settings.

Public interest in trails centered on two points: 1) the continuing or increased access to Forest trails and 2) the resolution of conflict among trail users. Interest in trails is not unique to the Siskiyou National Forest, rather it is a concern reflected in the Forest Planning process nation wide. The Gifford Pinchot National Forest developed a list of Public Issues and Management Concerns based on input from local users and Ranger District assistants that is typical for most Forests. This group identified nine issues and concerns, the second of which is specific to conflict among trail users.

> Trail users also indicated that there is conflict between users. The greatest conflict appears to be between hiker and/or horse users and motorized users....There is also conflict between horse users and hikers in specific heavily used areas of the Forest. How can this conflict be managed? (USDA, 1988)

The President's Commission on Americans Outdoors recognized the importance of the National Trail system. Klar and Kavanagh (1986) reported that trails are important to the American people. They reviewed 13 national surveys conducted between 1959 and 1978 and found that trail-related activities consistently rank among the ten most popular outdoor recreation activities. Krumpe and Lucas (1986) succinctly state the problematic focus of this paper in their report to the commission. They found that there are many kinds of trail-users: hikers, horseback riders, bicyclists, motorcyclists, ski tourers, snowshoers, snowmobilers, all-terrain-vehicle riders, joggers, and more recently, mountain bicyclists. They go on to say that because different types of trail users often utilize the same trails, there is a potential for conflict. Satisfaction is often affected by the type of users encountered and how they behave. Encountering large groups is particularly disruptive of others solitude. All four of the major types of trail users (hikers, horse riders, bicycle riders, and motorcycle riders) usually enjoy meeting hikers, but hikers prefer not to meet any other types. Furthermore, they report that horse riders and bicyclists are not particularly fond of motorcycle riders. Similarly, cross country skiers prefer not to meet snowmobilers. This would argue for the separation of trail users whenever possible.

User Diversity and the Basis for Conflict

The trail systems are being used. In the period between June 1986 and May 1987 there were a total of 82 million visits in Oregon, for trail related activities. Of these visitors, approximately 57 million were hikers, 17 million were non-motorized riders and 7 million were motorized users (Johnson, Bacon, White, Eixenberger, 1988).

Effective planning and management of trail systems is complicated by the diversity of users amongst the individual user groups. Virden and Schreyer report that a common perception is that people using similar areas for the same activity want the same type of recreation experiences. This may not always be true; differences in experience and commitment among users may result in different motives or reasons for engaging in an activity. They cite the example of a novice that may be hiking primarily for social reasons (his friends asked him to come along), and to escape the city. The more experienced hiker may be seeking challenge, skill development, and solitude. Different reasons for engaging in an activity may lead to preferences for different recreation settings. These different motives might also result in different behaviors even though both were technically "hiking in the wilderness". They further report that the concept of recreation specialization reflects the experience, committment, and skill level of the recreationist. They developed a user specialization index using measures that were representitive of: 1) past hiking experience 2) economic investment in hiking equipment and travel, and 3) importance of backcountry hiking to other life areas (Virden and Schreyer, 1988).

Jackson recognizes that trail users can be divided into two groups by activity. These are "consumptive activities" versus "appreciative activities". Consumptive activities involve taking something from the environment and thus reflect a "utilitarian" orientation toward it. In such a stance, nature is viewed as existing for human utilization. Appreciative activities, in contrast, involve attempts to enjoy the natural environment without altering it. Such activities are thus compatible with the preservationist orientation which attempts to maintain the environment in its natural state (Jackson, 1986). Thus it can be concluded that non-motorized trail users are an "appreciative activity", while motorized uses are a "consumptive activity", and therefore draw the first distinction among the four user groups.

Such diversity is prevalent among all of the four major trail user groups and points out the need for managers to know and understand the diversity within each, the expectations, the experiences they seek, their image of themselves and other users, and the problems they experience that contribute to conflicts between the groups of trail users.

Hikers

Hikers are characteristically distinguished from other trail users by the simple fact that they walk. Hikers further distinguish themselves from other hikers by qualifying themselves as backpackers. In a letter to the editor of Signpost Magazine, one writer from Seattle Washington states that "backpackers" as a type tend to prefer quiet and solitude to large group activities that other users may enjoy (Keyes-Back, 1985). Pursuit of an introspective experience in a natural environment appears to be a common characteristic among hiker/backpackers. Additional insight toward the hiker/backpackers attitudes toward the sights and sounds of "consumptive" activities is gained from this 1968 article that was reprinted in Signpost magazine:

> "Boardman Lake - Schweitzer Creek Road is open:....the area covered by the trail in to Boardman Lake and the campsite area are marked for logging operations. (Editors note: We can't help but feel, as we read the above report after several similar ones, in the same day, something like a mountain goat. *They* are driving us up, up, up, into the hills, to the topmost crags. Men, Women, children - we're clustered here on the alpine rocks watching the bulldozers and the logging trucks below us on every side. Every lake will have a road to it and be full of beer bottles; every trail will be a logging road and be full of motor scooters; every tree will be a teenager without character. At the end, only the most vigorous and agile will be able to keep hiking in the terrain thats left" (Marshall, 1986).

Keeping in mind that this article was written in 1968, it is easier to understand the "appreciative" attitude that most backpacker/hikers tend to have toward the environment and their current view that trails are a dwindling resource subject to the demands of many users including industrial development.

Fear of a dwindling resource continues to be a focus of hiker concern, eg. trails lost to "development" or to shared use with other "undesirable" trail user groups. Hikers have become more aware and involved in the politics of trail management. The Ostertag's write that "for many hikers the coupling of politics with the joy of a wilderness experience is incongruous. Politics is an involved process, sometimes disintegrating into a seedy piece of business, while hiking rejoices in a purer state focusing on communion with nature, introspection, and a retreat from the tensions and congestion of the workday world. But more and more, it is becoming apparent that hikers must create a political voice to ensure the preservation of their prized retreats" (Ostertags, 1989).

This same "appreciative" attitude may be the basis of hiker/backpacker attitudes toward other trail users and the basis for many conflicts. In a letter to the editor of Signpost magazine one writer states his perceptions of other trail-users. Regarding horse riders, he identifies two states of mind, one rational and the other irrational. "Rationally he says, it is perfectly clear to me that horse people and

foot people have equal rights in the backcountry and ought to be able to coexist peacefully". Emotionally though, he states that he has problems with horse people rather than horses. Problems cited by this writer include picketing animals in a campsite rather than out in a meadow or nearby forest, and watering animals in water holes rather than bringing water to horses. Regarding motorized trail users this same writer states that ORV users are "another bag of cats" altogether. At the root of this conflict is his feeling hikers typically seek to get away from the noise and fumes of machines when they go to the backcountry. Motorcyclists must, of neccessity, bring these very things to the backcountry with them (a consumptive use)in his view. He goes on to say that the presence of these vehicles is a direct affront to the entire hiking experience. One need not be in close proximity to an ORV in order to be made forcefully aware of its presence. He continues to explain that on a purely emotional level, his gut level feeling is that ORV users are inferior human beings because of their reliance on machines, an attitude that is fostered by the presence of a fragile mountain meadow shredded by motorcycle users (Keyes-Back, 1985). The Ostertag's lend support to these opinions stating in the preface to their book that:

> "ORV groups complain that it (trail access) is a matter of rights. Indeed it is a matter of rights; a hiker poses little threat to the ORV experience, save as an obstacle for which the driver must slow. Conversely, an off-road vehicle deprives the hiker of the tranquil pursuit of nature. Roaring engines, exhaust fumes, tread marks instead of animal tracks, crushed vegetation, eroding trails, and the absence of wildlife do not reward the physical expenditure or fulfill the spirit. Moreover, there is a question of hiker safety when trails are open for joint use. They go on to say that ORV groups complain that they should have equal access to the vistas and attractions afforded to hikers. They agree. ORV enthusiasts should have equal access to these natural splendors. Their motorized vehicles should not. They summarize Their perception of the problem by saying that to the ORV enthusiast, a trail is an access. To the hiker, the trail introduces an encounter with nature" (Ostertags, 1989).

Hiker/backpackers tend to seek solitude as a key part of their experience. Greenleaf, Echelberger, and Leonard support this theory. They discuss the idea as a basis for satisfaction; that if solitude is a management objective and a user expectation, then satisfaction attained on backpacking trips should in part depend on how alone or remote from society they expect to be and how nearly that expectation is achieved. They state that a theoretical basis for positing this relationship was discussed by Shreyer and Raggenback in 1978. Relying heavily on expectency and discrepency theories, these authors describe satisfaction as the difference between an individuals expectations (what one wants or thinks should be received) and an individuals perceived outcomes (what one thinks or feels was received). They reference studies conducted in western wildernesses including those done by Stankey in 1973 and 1980, and Heberlien in 1977 that indicate that as the number of parties encountered on a backcountry trail increases, the percentage of persons reacting favorably to those encounters decreases (Greenleaf, Echelberger, and Leonard, 1984). It can be inferred that encounters and/or evidence of other users can lead to an experience that is less than satisfactory. User conflict based on evidence of other users is further illustrated in a letter written to the Okanogan National Forest Supervisor and published in Signpost magazine. The writer supports the designation of hiker-only areas and cites motorcycle traffic and tread scars in meadows, shortcutting switchbacks, confrontations with stock owners, ease of access, and trails widened to "mini-roads", as points of conflict (Jennings, 1986).

Another writer cites the presence of motorcyclists in an area as the reason why one never encounters other hikers in the same area (Spring, 1987). Lucas writes that visitors perceptions of impacts from other user groups are probably influenced by assumed origins and depend on their own style of use. For example, horsemen or motorcyclists may ac-

cept their own impacts more readily than do hikers (Lucas, 1978).

Susan Anderson, Executive Director, Signpost Magazine, stated that there is a growing concern among hikers about the increasing presence of mountain bikes in the backcountry. Safety seems to be the greatest concern. To date no accidents involving hikers and mountain bikes have been documented, but fear of a sudden encounter with a rapidly moving bicycle is the greatest concern cited by hikers in Signpost. Anderson feels that the problem can be partially alleviated by better signing and providing wider trails with greater sight distances on mixed use trail systems. Overall though she stated a preference for area designation for specific users and minimum mixed use systems (Anderson, 1989).

Local perspective was obtained through a conversation with Kurt Herzog, a Southwest Oregon hiking enthusiast. Herzog agrees with the general image of the hiker presented above. When asked about conflict and perceptions of other user groups he explained that there are specific areas or trails where he has encountered other trail user groups. In general he says that the only place where he has encountered or seen evidence of motorized or mechanized users is in areas where they should not be (Wildernesses or the Pacific Crest Trail).

Herzog has developed perceptions of other trail users. He feels that mountain bikers are not legitimate backcountry users, rather they are bicyclists that happen to be on a trail. He qualifies this by saying that most of the mountain bikers he has encountered are not equipped for an extended stay; most are dressed for a bike ride and usually have no more gear than a day pack and water bottle.

He also spoke of motorcyclists. This is a group that he feels uses a trail system for "driving for pleasure". Most are not equipped for extended stays and in his words "seem to be in a helluva hurry" to get where ever it is that they are going. He feels that their real purpose is to ride their motorcycles and that interaction with nature is either secondary or of no importance at all (Herzog, 1988). Figure 1 summarizes hiker perceptions of potential conflicts with other trail user groups.

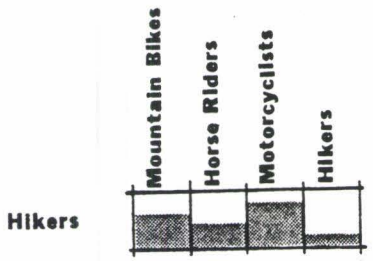

Figure 1 - Hiker Perceptions of Potential Conflicts with Other Trail Users

A general image of the hiker begins to emerge as a mutually exclusive individual in search of a recreation experience that provides solitude (few interactions with other users), the opportunity for self-reliance, and close interaction with natural processes. In general, hiker/backpackers are tolerant of horse riders but would prefer not to share trails with mechanized (mountain bikes) or motorized (motorcycles or ORV's) trail users. A trail system for the exclusive use of hikers is preferred.

Mountain Bikers

Gordon Hain, Assistant Recreation Staff Officer, Ochoco National Forest, provided initial perceptions of the mountain bike trail user group. In general, he stated they are the same people that you encounter cross country skiing in the winter. The group itself is characterized by two types of riders. The first is the "Gonzo Rider"; the minority in the group but the one that has caused a majority of the problems. This person is a thrill seeker, an individual that pursues a created image. The second type is the general rider. This person is looking for an extended route with moderate challenge and a good aerobic exercise. A fondness for fitness is a characteristic of both

groups. Mountain bikers would argue that theirs is an "appreciative activity" much the same as hiking, and they generally align themselves with environmental issues. As a group, Hain goes on to say, mountain bikers tend to like other trail users with one exception, the motorized user group. Usually mountain bike riders stick to the rules, that is, they will look for designated trails and stay on them. They don't see any real conflicts, in fact, they consider themselves a no-conflict group. They do feel excluded from some trails and exclusion from Wildernesses and the Pacific Crest Trail (PCT) is a sore spot with most. The mountain bike group tends to feel hostility from other trail user groups. Generally, mountain bikers seek a quality non-motorized (but mechanized) recreation experience. Solitude, extended rides, scenery, self-reliance and remoteness are all a part of the experience the seek. Most feel that the mountain bike does less damage to trails than hikers (Hain, 1989).

Tracy Reynolds, a mountain bike rider from Bend, Oregon, agrees with the perceptions provided by Gordon Hain. Reynolds characterizes himself as an avid rider and an "appreciative" trail user with concern for the environment. He feels that the mountain bike allows him to cover more ground and see more; is easier on the body than hiking, motorcycling, or horse riding; and is just plain fun. He would prefer not to share trails with motorized users but does agree that they have a right to be out there. He prefers hiking trails that are open to mountain bikes over other trails. He does stay on trail systems that are designated for use by mountain bikes. He stated that horse trails tend to be rougher and "knee deep in dust" in the summer and not very pleasant. When asked about conflict, Reynolds stated that he has never experienced any, but recognizes the potential. He feels that the speed differential between mountain bikes and other users provides the greatest potential for conflict and that keeping speed under control is the best way to avoid a problem. Reynolds agrees that resource damage can occur from mountain bikes and is most often caused by traveling too fast downhill which neccesitates braking and causes the damage.

A study done by the Santa Barbara Ranger District the Los Padres National Forest in 1987, provides additional insight to the mountain biking group and potential conflicts with other trail users, and supports the perceptions provided by Hain and Reynolds. The study was prompted because of growing concern over a "possible" safety hazard to hikers because of the presence of mountain bikers on the Santa Barbara Front trails. Group workshops were conducted in order to develop a management plan acceptable to all users. This study included hikers, horse riders, the Sierra Club, and mountain bikers. A solution could not be reached, however some agreement was reached on several points. These included: 1) the situation was complex; 2) safety was a concern nut no one was sure how serious; 3) users need to be better educated to the needs of other user groups; 4) more information is needed before making a decision.

User perceptions of conflict were based on several observations prior to public meetings which might be applied to any heavily used trail system. The following observations were among those cited.

- near misses have occurred and a safety hazard between mountain bikes and hikers and horse riders exists...mountain bikes are quiet & fast; most conflict occurs on narrow portions of trails
- some users (hikers) feel that bicycles don't belong on trails, are visually unacceptable and cause erosion
- bicyclists want access to backcountry areas
- bicycle use is not a passing fad; it will either remain the same or increase
- some members from each group have similar needs/wants (exercise, solitude, aesthetics, get away from exhaust, noise, pavement etc.)
- the problem is not with all bike riders, rather with some, specifically those that are transported to the top and coast downhill at high speed
- present and future wilderness designations will further limit bicycle opportunities

- individuals have their own "special trails"...they do not want to give them up by allowing them to be designated for bicycles
- as a group, bicyclists using trails tend to be a younger age group than hikers and horse riders
- the problem is newcomers (mt. bikes). Traditional trail users (hikers/horse riders) resist new users
- "turf" or sense of ownership exists with traditional users
- some user groups refuse to compromise. This promotes user conflict and a collabrative solution is not possible

Although safety was the basis of the report, the UC Santa Barbara survey of trail use in the Los Padres National Forest indicated only one recorded injury. This occurred when 8-10 bikes stopping for a hiker ran into each other. Analysis of the problem indicated more to the issue than safety and included many components or "entirely different problems", including turf or ownership of trails, fear of the dwindling resource, and lack of understanding between users (USDA, 1987).

Like motorized trail users, mountain bikers are beginning to feel "shut out". Remington writes that the use of mountain bikes has grown to the point where land managers are beginning to regulate them and consider them along with other users in long-range management plans. It is widely understood and accepted by most riders that mountain bikes, being "mechanized transport," are not permitted in congressionally designated Wildernesses (36 CFR 261.16). He goes on to point out that it is not widely known that some land managers are now planning to exclude mountain bikes from trails that lead into Wildernesses. Remington cites conflicts with other users as the basis for this trend in trail closures (Remington, 1987). Figure 2 summarizes mountain biker perceptions of potential conflicts with other trail user groups.

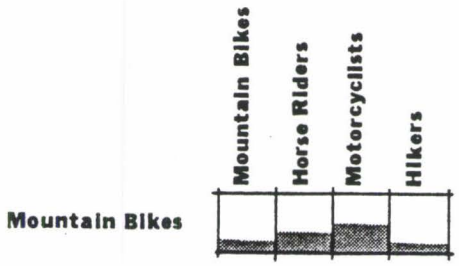

Figure 2 - Mountain Bikers Perception of Potential Conflicts with Other Trail Users

A general image of the mountain biker emerges as a younger, adventurous individual looking for a challenging recreation experience that includes the opportunity for exercise. The group unanimously characterizes itself as appreciative users with strong feelings for the environment. The "day rider" seems to be the majority, a fact that may be attributed to the lack of extended trail systems. As a group, the mountain bikers feel that they can get along with anyone and feel that other users discriminate against them. Most would prefer not to share trail systems with motorized users but are tolerant of their presence. Other trail users concern with mountain bikers is that the bike is quiet which can cause the rider to appear suddenly and startlingly.

Motorized Trail Users

Mike Dolphay, Trail Coordinator on the Wenatchee National Forest, has worked extensively with ORV trail users and has provided initial perceptions of the group. As a group, he explained, motorized trail users are looking for a trail or system of trails that provide the opportunity for an extended challenging ride, and access to specific locations such as lakes, vista points, or rivers. Dolphay suggests that motorized trails of 30 miles or greater with varying degrees of challenge be offered. Trail developments should be located in conjunction with developed campgrounds since many motorized users operate as family units. A desirable situation

according to Dolphay would be a system of trails located near a developed campground with one opportunity for an extended ride and some shorter trails as alternate routes. This, he explained, would meet the needs of families or groups on a weekend outing since many ORV users travel on Friday, enjoy an extended ride on Saturday, take a short ride on Sunday and then return home (Dolphay, 1989).

The type of experience motorized users seek tends to vary with the level of experience each individual rider, and trail systems offering a variety of opportunities with a range of experiences should be developed according to Dolphay. For instance, novice riders look for minimum length trails. Thirty miles is a recommended minimum for a full day ride with moderate challenge (FSH 2309.18 Trail Management Handbook). Challenge seems key to experiences that trail riders seek. He explained that challenges vary and can include such things as exposure to steep side slopes on one or both sides of the trail; trails that are rocky, rough, steep, with some obstacles such as logs, narrow sections with many turns; or located on ridge or mountain tops. These people are looking for trails designated for motorized uses; area designations do not seem to work (Dolphay, 1989).

Regarding conflict with other users, Dolphay feels that motorcyclists are an amicable group. Similar to the mountain bikers, motorcyclists feel that they have a right to use trail systems and that they do get along with other user groups. Most feel resentment directed toward them and there have been occurrences of hostile confrontation. Motorized users greatest concern is having areas and the trails accessing them closed to their use. Many have experienced the effects of wilderness designation where areas that they have used and enjoyed for many years have been designated wilderness and are no longer available to motorized access. Rumors persist that there are safety problems associated with mixed use of trail systems, however, according to Dolphay there have been no accidents reported involving motorcycles, hikers, or mountain bikes. There has been one accident reported on the Wenatchee National Forest involving motorcycles and horses. Dolphay states that the overall image of motorcyclists is dependent on the ethics and actions of individuals and that there are always those few who create problems and a bad image for the majority of the users (Mike Dolphay, 1989).

A more precise picture of the motorized trail user group is obtained from the State of Washington's Statewide Off-Road Vehicle Plan. The demographic information presented is the result of data obtained from three surveys conducted in the State of Washington. The group is predominantly male (71 percent), and young. Approximately half of the adult users (53 percent) are under the age of 34. Few ORV users (9 percent) are over the age of 55. About two thirds of the adult ORV users (63 percent) are married. Off-road vehicle users tend to come from larger households. The educational background of off-road vehicle adult users is somewhat lower than that of non-users however, their income is somewhat higher than that of non-users. Finally, the surveys indicated that most users own more than one type of ORV (Washington's Statewide Off-Road Vehicle Plan, 1981).

In an editorial for BlueRibbon (an all-terrain vehicle newspaper), additional perceptions can be developed. The Off Highway Vehicle (OHV) enthusiasts are described as a very diverse group and come from virtually all walks of life. A growing number of senior citizens are discovering outdoor recreation in their retirement on ATVs and snowmobiles. Though they come from diverse backgrounds, OHV enthusiasts share a common bond with one another and with wilderness advocates. We all share a genuine appreciation of our natural wonders. Attempts to stereotype us as uncaring intruders on our public lands is neither accurate nor fair (Collins, 1989).

Tom Harris, a member of the Pacific Northwest Four Wheel Drive Association, provided a local perspective for the motorized user group. He stated that this tends to be groups of people that enjoy the comraderie of the group and a shared outdoor recreation expe-

rience. For this type of trail user, trails offer the opportunity to experience challenge, and to get off the beaten path. He expressed a fear of dwindling resources as the greatest concern among local users (Harris, 1989). Figure 3 summarizes motorized trail users perceptions of potential conflicts with other trail user groups.

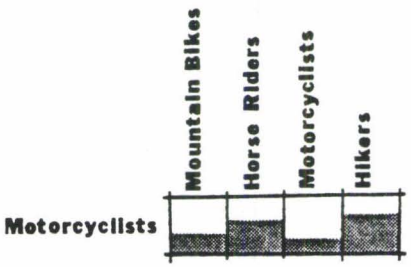

Figure 3 - Motorcyclists Perceptions of Potential Conflicts with Other Trail Users

The image of the motorized trail user emerges as a family oriented individual that enjoys a shared (group) recreation experience. Challenge seems to be the key ingredient in the recreation experience that most are looking for. Day trip access is a primary concern and many would prefer facilities located near developed campgrounds. Motorized trail users feel that they can coexist with other trail user groups and feel that most "conflicts" are generated by others. More education and understanding of other users is needed. Access to backcountry areas is important to the group, however, the greatest point of concern is the "fear of a dwindling resource that is common among all of the trail user groups.

Horse Riders

Wally Rainsbury, Trail Coordinator on the Umpqua National Forest, provided initial perceptions of this user group. He characterizes traditional horse riders as people that have been raised around horses and travel with them. These people were usually destination oriented and were traveling for a specific purpose such as hunting or fishing. He states that traditional users are now a minority in the horse riding group and that he would now characterize horse riders as more of a novice group. He qualifies this by saying that the new riders are people that have some acreage and one or several horses. He feels that they may be familiar with riding horses but are not familiar with riding in the backcountry. In general, he cites as an example that many do not know how to hobble a horse in order to turn it out to feed. Another local horse rider, Jim Roper of the Josephine County Mounted Sheriff's Posse, agrees with the idea of inexperienced riders and feels that this is reinforced by the fact that there is not a traditional core of horse riders in the area, because Outfitters and Guides do not (or have not) operate in the southern Oregon area. Jerry Johnson, Trail Coordinator on the Colville National Forest, agrees with these statements, but says that a combination of lack of skill and the lack of a properly trained animal are factors. He feels that many people ride poorly trained animals into the backcountry and won't turn them out because they would probably run away. George Bretz, a local horseman from Williams, Oregon agrees that education is needed to teach novice riders how to train and handle horses in the backcountry.

Both Rainsbury and Johnson agree that horse riders are interested in extended rides (2-3 days), or shorter day loops, and prefer to travel in groups of 6 on the average. Both agree that the majority of horse riders are primarily weekend recreationists. Johnson described the demographics of the group as family oriented people that are older (40+) or retired. He feels there is an even mix of males and females and that they are looking for experiences similar to hikers (interaction with nature, solitude, scenery etc.). In addition, most feel that they can cover more ground, enjoy their relationship with their horse, and use outings as an opportunity to train stock.

Regarding conflict with other users, both Rainsbury and Johnson cited noise from motorized users (especially motorcycles com-

ing from behind) as a problem, since noise can cause the horses to spook. Bretz agrees, but cites motorcycles coming downhill fast as his primary concern. He also feels that motorcyclists like to "spin out" and tear up the trails in the process. All agree that noise announces the impending arrival of a motorcycle and gives them time to prepare. Motorized users are much easier to deal with when the horse rider knows that they are in the area.

Johnson feels that other users need to understand their effect on horses. For instance, he states that hikers need to sit down, take their packs off, and get off the trail. A horse does not recognize a person with a pack on as a human and is less likely to spook if the hiker understands this and removes the pack. In addition, he feels that this provides the opportunity to talk which can be very pleasant. He feels that the same is true of motorcyclists. They need to stop, turn off their bike, and most important remove their helmet, once again becoming a human in the eyes of the horse. Regarding mountain bikes, all three men stated that sudden unexpected encounters are the thing that they would fear most but none have encountered the problem to date. Jim Roper has heard of hikers complaining about "horsemen in their buckaroo outfits leaving piles of manure on the trails. Another complaint is the introduction of "exotic grasses" into wilderness ecosystems. He feels that more exotic seeds are transported into wilderness ecosystems on the pants legs and socks of hikers than are transmitted by horses. The greatest concern of horse riders is the fear of being squeezed out according to Roper. Many areas in southern Oregon were once the exclusive domain of the horse rider, and now are used primarily for backpackers. When asked if he meant wilderness, Roper said no, and cited the example of the Rogue River Trail. This is a 42 mile trail that has historically provided access from the interior valleys of southwest Oregon to the coast. Originally the trail was constructed for use by pack animals. Now horses are excluded from the trail in deference to the desires of hikers and boaters (Rainestury, 1989) (Bretz, 1989) (Johnson, J., 1989) (Roper, 1989).

When asked about perceptions of other users, George Bretz stated that he feels that he can get along with just about anyone. Both Wally Rainsbury and Jerry Johnson felt that they have more problems with hikers than motorcyclists. Johnson stated that he has heard hikers characterized as "flower sniffing, biscuit kicking purists", with little patience for other users. He feels that motorcyclists are generally seen in a good light by horse riders (especially in Washington) and attributes this to the fact that motorcyclists lobbied successfully for more trail construction money which resulted in more facilities for all user groups (Bretz, 1989) (Rainsbury, 1989) (Johnson,J., 1989). Figure 4 summarizes horse riders perceptions of potential conflicts with other trail user groups.

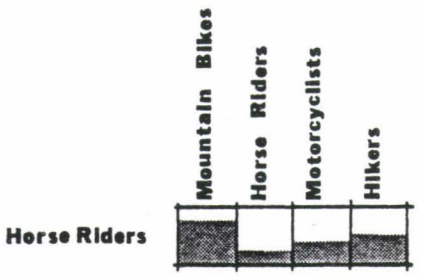

Figure 4 - Horse Riders Perceptions of Potential Conflicts with Other Trail Users

A general image of the horse rider emerges that is similar in many respects to that of the motorized user. The group is older, family oriented, and enjoys a shared (group) recreation experience. Most are interested in extended trips and would enjoy facilities that are located near developed campgrounds with horse facilities. The group would characterize itself as an appreciative user, but seem to be more tolerant of other user groups, particularly motorcyclists. The majority of the group feels that they can get on well with other user groups. Their greatest concern with other users would be the fear of a sudden encounter with a silent bicycle. Like other user groups, horse riders fear the dwin-

dling resource. Horse riders are willing to share mixed use trails, but would favor designated use systems as a way of preserving access to National Forest trail systems.

Conclusions

Conflicts between trail user groups exist, either real or perceived. The basis of user conflict is more difficult to define. Some would argue that managing agencies perpetuate conflict, while others argue that conflict is just a matter of understanding the values and needs of other trail user groups.

Spring cites management policies as the reason why conflicts are perpetuated between hikers and motorized users on three National Forests in the State of Washington. He cites the differences between the Standards and Guidelines for the Mt. Baker-Snoqualmie and Okanagan National Forests as an example. The Forest-Wide Standards and Guidelines and Management Prescriptions for the Mt. Baker-Snoqualmie National Forest (Draft, January, 1986) state:

D. OFF-ROAD VEHICLE USE

1. Ensure that Off-Road Vehicle (ORV) use, including over snow type, is managed to mitigate their impacts on other resources, promote safety of users, and minimize conflict with other uses.

2. Use ORV closures only when needed to minimize disturbance of wildlife, prevent recreation use conflicts, or to protect soil and water resources.

He contrasts these with the Standards and Guidelines developed on the Okanagon National Forest Trail Plan, prepared 8/76 and revised 6/78:

Section 5. Other recreational use.

"Philosophical differences and assumed conflicts between ORV use and other recreationists will have no bearing on ORV management."

Spring concludes that individual management plans perpetuate a situation that he finds undesirable and that "unless hikers unite and write the Forest Service and their congressmen, hikers' rights to a motor-free experience will
be disregarded (Spring, 1986).

Jim Archembault, trail coordinator, Twisp Ranger District, Okanagan National Forest, reports that the Standards and Guidelines cited above *were* in use, but have been revised recently to better reflect concerns for conflict among trail users (Archembault, 1989).

Public land managers are aware of conflict (both real and perceived) among trail users. Cole, Petersen, and Lucas point out that extensive literature is now available on how to manage recreation use. A framework exists for the development of solutions to management problems as well as a step by step procedure for evaluating alternative approaches to problem solving. They examined the frequency of occurrences of major problems of recreation use identified by Washburn and Cole in 1983, from a survey of all Wildernesses in the National System that was done in 1979. Deterioration of trails and campsites, litter, crowding and conflicts between users were identified as major problems at that time. Their approach was to identify several strategies that would be pertinent to the resolution of specific problems. For example; one problem cited was crowding and visitor conflict. Strategies were developed based on social research done by Manning in 1985, and Stankey and Schreyer in 1987, which demonstrated that whether visitors feel crowded or not is a function of more than how many other people they meet. Manning (1985) reported that the location of the encounter makes a difference; encounters at campsites are less acceptable than those at access points such as trail heads. Similarly crowding is also affected by the type of party encountered; and encounters between certain types of parties resulted in conflict. Encounters with large parties, parties with stock, and parties with pets are usually less acceptable to some users than encounters with parties without these characteristics. En-

counters with similar parties is most acceptable. Visitor expectations can also have an effect on the extent to which the number and type of encounter contributes to crowding. Subsequently, the problem of crowding and visitor conflict was broken into two subproblems: (1) too many encounters and (2) conflicting encounters. For each subproblem, the specific cause of the problem is identified. Factors that affect visitor conflict are the type of use and behavior of visitors encountered, where encounters occur, and visitor expectations about both number and types of encounters. Conflicts were identified as most severe when encounters occur between dissimilar parties, particularly if the type of party encountered or its behavior is considered inappropriate. Conflicts are also considered severe if they occur at campsites, in remote areas, or when they occur unexpectedly. Several strategies are identified that include tactics that might be employed to resolve conflict. For example:

Strategy III. Modify the location of use within problem areas

- Discourage or prohibit conflicting types of use (such as stock, pets, or large parties) from using certain areas.
- Encourage or permit conflicting types of use to camp only on certain campsites or use only certain locations segregate different types of users

Other strategies including Reduction of use, modification of the timing of use, Modification of the type of use and visitor behavior, and the modification of user expectation, might be employed to deal with various aspects of visitor
conflict (Cole and others, 1987)

Other groups urge simple acceptance of other forms of trail use by all trail users. Friends of the Earth published a paper in 1984 (focused toward mountain bikes) for the stated purpose of pointing out what the issues would be (relative to the use of mountain bikes), how they can be dealt with before problems arise, how sensible planning can be a benefit to all trail users, and to issue a set of guidelines for local authorities, together with an advisory code of conduct for all off-highway cyclists. They further advise local managers to take notice of use (all types) at an early stage, assess levels of demand, and provide adequate facilities to access off highway trail systems (Friends of the Earth, 1984).

User specific publications such as *BlueRibbon* (motorized users) and the *Mountain Bike Guide to Oregon* publish a code of ethics which heavily emphasize acceptance, respect for, and understanding of other trail users and the experiences they are seeking. Other publications such as *50 Hikes in Oregon's Coast Range and Siskiyou*, and *Signpost*, seem to favor designated "user specific" trails to insure the quality of their recreation experience. Separation of conflicting uses is an obvious solution to conflict, however since virtually all users fear dwindling resources and denied access, some shared systems are inevitable, and probably desirable. Most of the local trail users agree that while there are some groups they would prefer not to share trails with, all have a right to use (some) trails.

Local users would also seem to agree that acceptance of other trail users would reduce the potential for conflict. Education of trail users is seen as key to the resolution of potential conflicts by all the user groups. Education can take a variety of forms. Kurt Herzog is an advocate of an accurate recreation map that might have a key indicating the primary use the trail is managed for. In this way he feels that users have access to destination, topography, and the type of other users that may be using the trail. The trail managers (Rainsbury, Johnson, Dolphay) agree that preinformation is needed and that the Recreation Opportunity Guides (ROG's) currently used by the Forest Service are a good way to "alter user expectations" before a trip is underway. The ROG's usually provide a description of the trail (length, difficulty, vegetation, water, and user restrictions), what to look for (campsites, wildlife, unique plants, or special attractions), and usually feature a map of the trail.

Jim Roper stated that the Josephine County Mounted Sheriffs Posse and other horse groups regularly conduct one to three day seminars that feature backcountry techniques, including camping and packing. Usually these seminars feature some discussion of other users and their needs. More is needed as is more education in stock training.

There are some interesting parallels between the apparent conflict between horse riders and their stock around campsites and water sources and the inexperience of both stock and riders in the backcountry. Education of other user groups (hikers, mountain bikers, motorcycles) to the needs of horses seems to be an apparent need as well. Education of managers is an ongoing need. Roper recalls training seminars where managers violated several backcountry rules that most horse riders are aware of. Managers need to be "up to speed".

Clear identification of trail closures can cause problems. Tracy Reynolds recalls riding his mountain bike onto a trail system that had no posted closures either at the trailhead or on the trail. However, when he reached the trailhead at the other end of the trail he found that he had been riding on a trail open only to hikers and horse riders.

Trail designations are a topic of interest to all users. Some managers such as Wally Rainsbury favor designation by primary use. Closures would be minimized. Spring favors area designation for specific groups, feeling that the presence of some groups precludes use by others. Herzog is sympathetic to that concept but feels that the arbiter should be the resource. If the soils and vegetation along the length of the trail can support the use then the use should be allowed. If serious degradation occurs due to a specific use then that use should be eliminated.

The list could go on, the point being that there is ample information available so that three key ingredients to resolution to conflict can occur. All users seem to agree that information, education, and understanding are essential to any process used to achieve resolution.

Future Considerations

Effective trail management can be achieved as a result of a carefully designed planning *process*. Stankey, Clark, and others (1985) developed and described the Limits of Acceptable Change (LAC) system. Though developed for use in specific areas such as wilderness, the system can be adapted for application to the trail management process. The LAC process was developed in response to the need of managers for a way of dealing with the increasing demands on recreational areas in a *visible*, *logical* manner. They state that the LAC process represents a reformulation of the recreation carrying capacity concept, with the primary emphasis now on the conditions desired in the area rather than on how much use an area can tolerate. The process is heavily dependent on the involvement of various user groups and can result in management plans such as the Bob Marshall Wilderness Management Plan that meet the needs of various users.

The process is characterized by nine steps including; the identification of area concerns and issues, the definition and description of recreation opportunity classes (ROS), the identification of indicators representing resource and social conditions for which management is striving, the inventory of existing conditions, the identification of alternative allocations of areas among the various opportunity classes, an analysis of the various costs and benefits of each alterative, the selection of a final alternative, and finally the implementation of the selected alternative and monitoring (Stankey and others, 1985).

Recommendation: *A process such as LAC should be identified and used in the formulation of trail management policies.*

The goal of the recreation manager is to provide a range of recreation opportunities that are expected provide experiences that satisfy the expectations of Forest recreationists. A

key factor in the quality of recreation experiences is the Forest setting in which the experience occurs. The Recreation Opportunity Spectrum provides a framework for defining the types of recreation opportunities the public might desire, and identifies the portion of the spectrum of opportunities that a given National Forest might be able to provide. Each opportunity class is defined in terms of its combination activity, *recreation setting*, and experience opportunities, ranging from primitive on one end of the spectrum to a more urban experience at the other (ROS Users Guide, 1985). Visual Quality Objectives are defined as degrees of acceptable deviation from the existing character of the landscape (USDA, 1974). The desired character of the landscape can be identified for each ROS class and appropriate Visual Quality Objectives identified so that the desired character can be achieved and maintained. Management techniques to achieve Visual Quality Objectives are usually identified in Forest Management Standards and Guidelines.

Recommendation: *Visual Objectives appropriate for the management of the various ROS classes should be used to provide recreation settings that will insure the quality of recreation experiences on all National Forest Trail Systems.*

Trail systems that provide a range of experience, varying degrees of difficulty, and challenge are needed. Trail management Standards and Guidelines in Forest Management plans have been developed for this purpose. Existing facilities need to be retained and new facilities need to be added to the trail system. The trail system need not be a "dwindling resource". Rather that image can be altered to one of an expanding resource.

Recommendation: *Managers need to develop adequate standards and guidelines for the management of the existing trail system including trail management objectives and maintenance standards for each trail, and to provide for the development of additions to the system that are designed to meet the needs of the various user groups.*

Adequate up to date information of Forest trail systems is a concern of all user groups. Expectations often differ from the actual experience. If expectations can be altered prior to the event a better recreation experience can result. For example, horse riders deal more effectively with and are less apt to be offended by motorized users if they know they are in the area.

Recommendation: *Preinformation systems including media such as the interactive video system, Trail Information System (TRIS) computer programs, printed material such as sub regional recreation maps, Forest Recreation Maps, Recreation Opportunity Guides, Condition reports to user publications, trail guides, brochures, or other material need to be developed and made available to the public in as many locations as possible.*

Closures need to be clearly posted on the trails and to the extent possible on the preinformation material identified above. Reinforcement of such information is needed in media stations, maps, Recreation Opportunity Guides, information desks, the trailhead, and finally on the trail.

Education of users was a recurrent idea throughout the discussions with the various user groups. Education includes training in backcountry camping and packing, training of stock, acquainting users to the needs of other users, and ethics including such concepts as no trace camping and tread lightly.

Recommendation: *Managers should be encouraged to promote and participate in educational seminars. Interactive sessions amongst various users and managers should be encouraged to promote greater understanding, acceptance, and respect between users (and managers). Seminars can include interactive volunteer work such as trail maintenance or facility construction as well as educational events.*

Some segregation of users seems desirable, though most users agree that some mixed use trail systems are needed.

Recommendation: *Land allocations should be encouraged that provide high quality primitive or semi-primitive non motorized and motorized recreation opportunities outside of designated wilderness.*

Trail construction and maintenance standards should be modified on mixed use trails to include wider trails or greater clearing limits to accomodate the needs of all users on the trail.

Finally, managers should be encouraged to promote the use of Forest trail systems. Users should be encouraged to understand, accept, and respect the needs of other users. Respect for the land as always, is the bottom line.

The incorporation of these recommendations with existing trail management standards and guidelines can result in a successful trail program that is essentially free of conflict. The success of the implementation is dependant on the commitment of the entire Forest staff including Forest Supervisors, Department staff, District Rangers, trail managers and their work crews. Often trail programs focus on construction and maintenance of trail systems with little thought given to the variety or type of trail users or the experiences they are seeking. Interaction with trail users by Forest managers at all levels will lead to a greater understanding of the types of experiences trail users are seeking and situations that may result in conflict that can be avoided. Successful implementation will insure the availability of a wide variety of trail related recreation experiences that are free of conflict between the individual user groups or with the managing agency.

Happy Trails!

References

Anderson, Susan. 1989. Telephone conversation with Susan Anderson, Executive Director, Signpost Magazine. March.

Archembault, Jim. 1989. Telephone conversation with Jim Archembault, Trail Coordinator on the Twisp Ranger District, Okanagan National Forest. March.

Bretz, George. 1989. Telephone conversation with George Bretz, Horse rider, Williams, Oregon. March.

Cole, David N., Margaret E. Petersen, Robert C. Lucas. 1987. Managing Wilderness Recreation Use: Common Problems and Potential Solutions. *General Technical Report INT-230.* Intermountain Research Station. August. pp 1-55.

Collins, Clark. 1989. Respect Between User Groups. *BlueRibbon.* February. p 2.

Dolphay, Mike. 1989. Telephone conversation with Mike Dolphay, Trail Coordinator on the Wenatchee National Forest. February.

Friends of the Earth. 1984. Access & Accessibility to the Countryside. Friends of the Earth, 377 City Road. London, England. July.

Greenleaf, Robert D., Herbert E. Echelberger, Raymond E. Leonard, 1984. Backpacker Satisfaction, Expectations and Use Levels in an Eastern Forest Setting. February.

Hain, Gordon R. 1989. Telephone conversation with Gordon Hain, Assistant Recreation Staff Officer, Ochoco National Forest. February.

Harris, Tom. 1989. Telephone conversation with Tom Harris, Pacific Northwest Four Wheel Drive Association, Klamath Falls, Oregon. March.

Herzog, Kurt. 1989. Telephone conversation with Kurt Herzog, Southwest Oregon Hiker, Grants Pass, Oregon. March.

Jackson, Edgar L. 1986. Outdoor recreation participation and attitudes to the environment. *Leisure Studies.* August. pp 1-23.

Jennings, Scott M. 1986. Costly Motorcycle Runways. *Signpost.* August. pp 5-6.

Johnson, Jerry. 1989. Telephone conversation with Jerry Johnson, Trail Coordinator on the Colville National Forest. February.

Johnson, Rebecca L., Warren Bacon, Kenneth White, Don Eixenberger, 1988. Assessment of Oregon's Forest Related Recreation. *Assessment of Oregon's Forests.* July. pp 1-17.

Keyes-Back, Robert. 1985. Stop Fighting User Fees. *Signpost.* August. pp 4-5.

Klar, Lawrence R. Jr., Jean S. Kavanagh, 1986. Trails Are Important. *Report and Recommendations to the President of the United States.* Presidents Commission on Americans Outdoors. December. p 43.

Krumpe, Erwin E., Robert C. Lucas, 1986. Many Trail Activities--And Potential Conflicts. *Report and Recommendations to the President of the United States*. Presidents Commission on Americans Outdoors. December. pp 106-107.

Lucas, Robert C. 1978. Perceptions of Non-Motorized Recreational Impacts: A Review Of Research Findings. *Recreational Impacts on Wildlands: Conference Proceedings*, October 27-29, 1978, Seattle Washington, edited by Ruth Ittner..et al.

Marshall, Ann. 1986. From May 22, 1968: Boardman Lake. *Signpost*. April. p 17.

Ostertag, Rhonda and George. 1989. *50 Hikes in Oregon's Coast Range and Siskiyous*. Unpublished Draft. March. The Mountaineers - Books, Seattle, Washington. Preface.

Presidents Commission on Americans Outdoors. 1986. *Report and Recommendations to the President of the United States*. December. p 3.

Rainsbury, Wally. 1989. Telephone conversation with Wally Rainsbury, Trail Coordinator on the Umpqua National Forest. March.

Remington, Jack D. 1987. *Mountain Bike Guide To Oregon*. Oregon State Parks and Recreation Division. pp 1-21.

Reynolds, Tracy. 1989. Telephone conversation with Tracy Reynolds, Mountain bike rider, Bend, Oregon. March.

Roper, Jim. 1989. Conversation with Jim Roper, Josephine County Mounted Sheriffs Posse. March.

Spring, Ira L. and WTA Staff. 1986. Conflict -Why Do Some National Forests Let It Continue? *Signpost*. August. p 30.

Spring, Ira L. 1987. Why Is There Solitude At The Mad River? *Signpost*. October. p 4.

Stankey, George H., David N. Cole, Robert C. Lucas, Margaret E. Petersen, Sidney S.Frissell. 1985. The Limits of Acceptable Change (LAC) System for Wilderness Planning. *General Technical Report INT-176*. Intermountain Forest and Range Experiment Station. January.

United States Department of Agriculture. 1989. Challenge Cost-Share Agreement between Southwestern Oregon Visitor Association and Siskiyou, Rogue River, Umpqua, Winema and Siuslaw National Forests No. 89-06--59-07.

United States Department of Agriculture. 1988. *Draft Trail Task Force Plan*. Gifford Pinchot National Forest. March.

United States Department of Agriculture. 1987. *"Kepner-Trego Analysis" Mountain Bicycle Situation On Santa Barbara Front Trails Managed By The U.S. Forest Service*. Santa Barbara Ranger District, Los Padres National Forest. August. pp 1-18.

United States Department of Agriculture. 1989. *FSH 2309.18, Trail Management Handbook.*

United States Department of Agriculture. 1982. ROS Users Guide. August.

United States Department of Agriculture. 1974. National Forest Landscape Management Volume 2. *Chapter 1 The Visual Management System.* Agriculture Handbook Number 462. April. pp 1-47.

United States Department of Agriculture. 1989. Siskiyou National Forest *Land and Resource Management Plan* Final Environmental Impact Statement, Appendix K. March.

Virden, Randy J., Richard Schreyer, 1988. Hiker Diversity in Backcountry Areas-Implications for Planning and Management. *Western Journal of Applied Forestry.* April. pp 49-52.

Washington State Interagency Committee for Outdoor Recreation, Planning Services Division. 1981. *Washington's Statewide Off-Road Vehicle Plan.* June. pp 35-43.

"Wilderness and Congressionally Designated Areas." 1984. *Code of Federal Regulations* Title 36, Pt. 261.16. June.